CT3400M2

N-CHANNEL ENHANCEMENT MODE POWER MOSFET

»Features

- **Fast Switching Characteristic**
- **Low Gate Charger**
- **Small Footprint & Low Peofile Package**
- **RoHS Compliant & Halogen-Free**

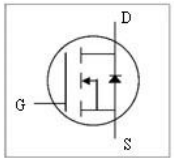
BV_{DSS}	30V
$R_{DS(ON)typ}$	22mΩ
I_D	5.8A

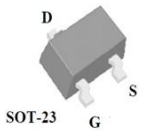
»Description

CT3400M is from Coretong innovated design and silicon process technology to achieve the lowest possible on- resistance and fast switching performance. It provides the designer with an extreme efficient device for use in a wide range of

The SOT-23 package is widely preferred for commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

»Schematic & PIN Configuration





SOT-23

»Absolute Maximum Ratings@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±12	V
I_D@T_A=25℃	Drain Current, V_{GS} @ 10V[3]	5.8	A
I_D@T_A=70℃	Drain Current, V_{GS} @ 10V[3]	4.8	A
I_{DM}	Pulsed Drain Current[1]	20	A
P_D@T_A=25℃	Total Power Dissipation[3]	0.4	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	150	℃

»Thermal Data

Symbol	Parameter	Value	Unit
Rthj-a	Maximum Thermal Resistance, Junction-ambient[3]	62.5	℃/W

»Electrical Characteristics@T_j=25 oC(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	30	-	-	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance2	V_{GS}=10V, I_D=5.8A	-	22	35	mΩ
		V_{GS}=4.5V, I_D=5A	-	25	40	mΩ
		V_{GS}=2.5V, I_D=4A	-	37	52	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	0.7	0.95	1.2	V
g_{fs}	Forward Transconductance	V_{DS}=5V, I_D=5A	8	-	-	S
I_{DSS}	Drain-Source Leakage Current	V_{DS}=30V, V_{GS}=0V	-	-	1	uA
I_{GSS}	Gate-Source Leakage	V_{GS}=±12V, V_{DS}=0V	-	-	±100	nA
Q_g	Total Gate Charge2	I_D=5A V_{DS}=10V V_{GS}=6V	-	17.25	-	nC
Q_{gs}	Gate-Source Charge		-	2.1	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge		-	2	-	nC
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=15V I_D=5A R_G=3Ω V_{GS}=10V	-	4.4	-	ns
t_r	Rise Time		-	28.2	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	16.2	-	ns
t_f	Fall Time		-	26	-	ns
C_{iss}	Input Capacitance	V_{GS}=0V V_{DS}=25V f=1.0MHz	-	630	-	pF
C_{oss}	Output Capacitance		-	55	-	pF
Crss	Reverse Transfer Capacitance		-	71	-	pF
Rg	Gate Resistance	f=1.0MHz	-	1.9	-	Ω

»Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{SD}	Forward On Voltage²	I_S=1A, V_{GS}=0V	-	-	1.2	V

Notes:

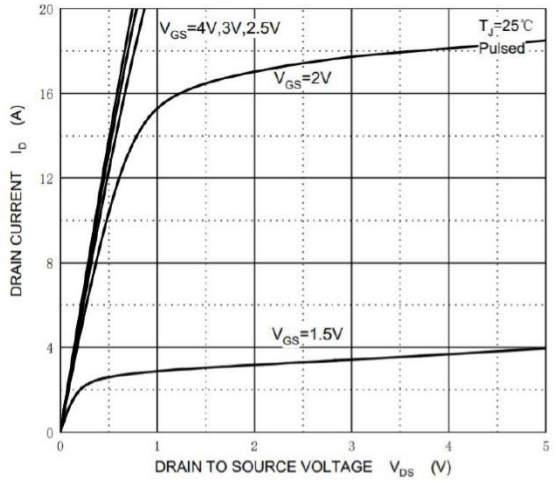
1.Pulse width limited by Max. junction temperature.

2.Pulse test

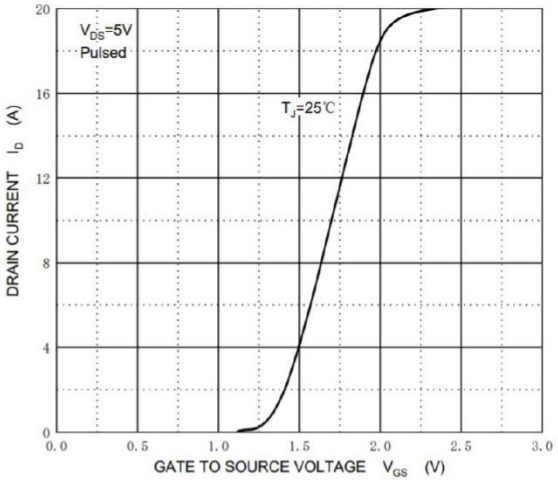
3.Surface mounted on 1 in^2 2oz copper pad of FR4 board, t ≤10sec ; 300°C/W when mounted on min. copper pad.

Typical Performance Characteristics

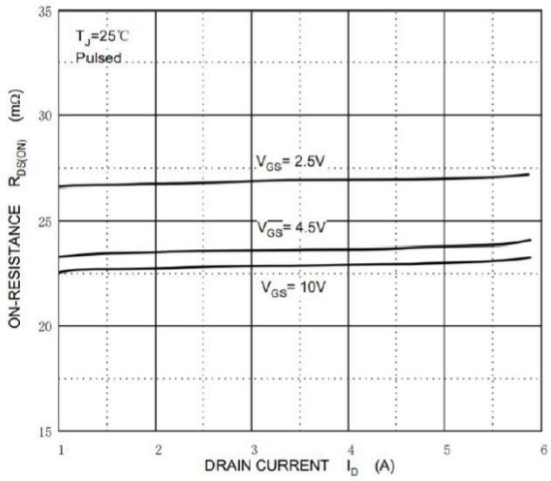
Output Characteristics



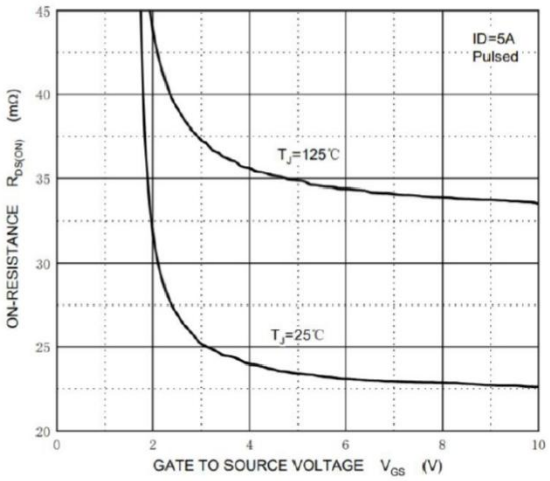
Transfer Characteristics



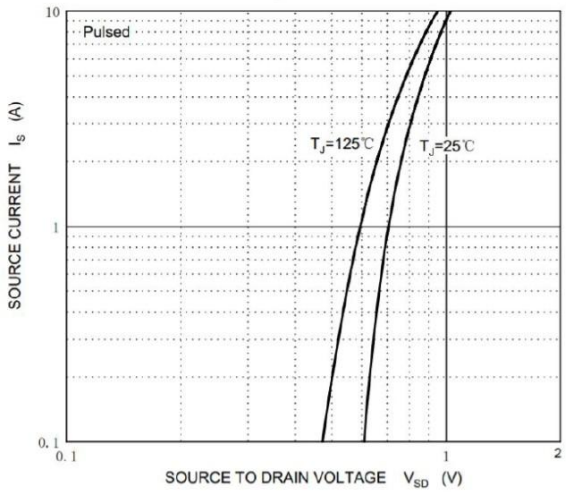
$R_{DS(ON)}$ — I_D



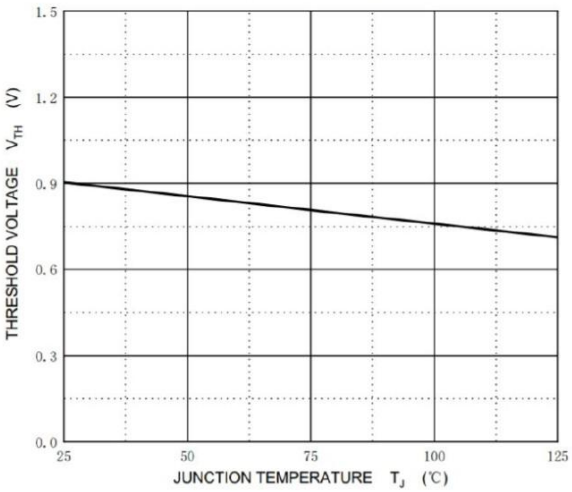
$R_{DS(ON)}$ — V_{GS}



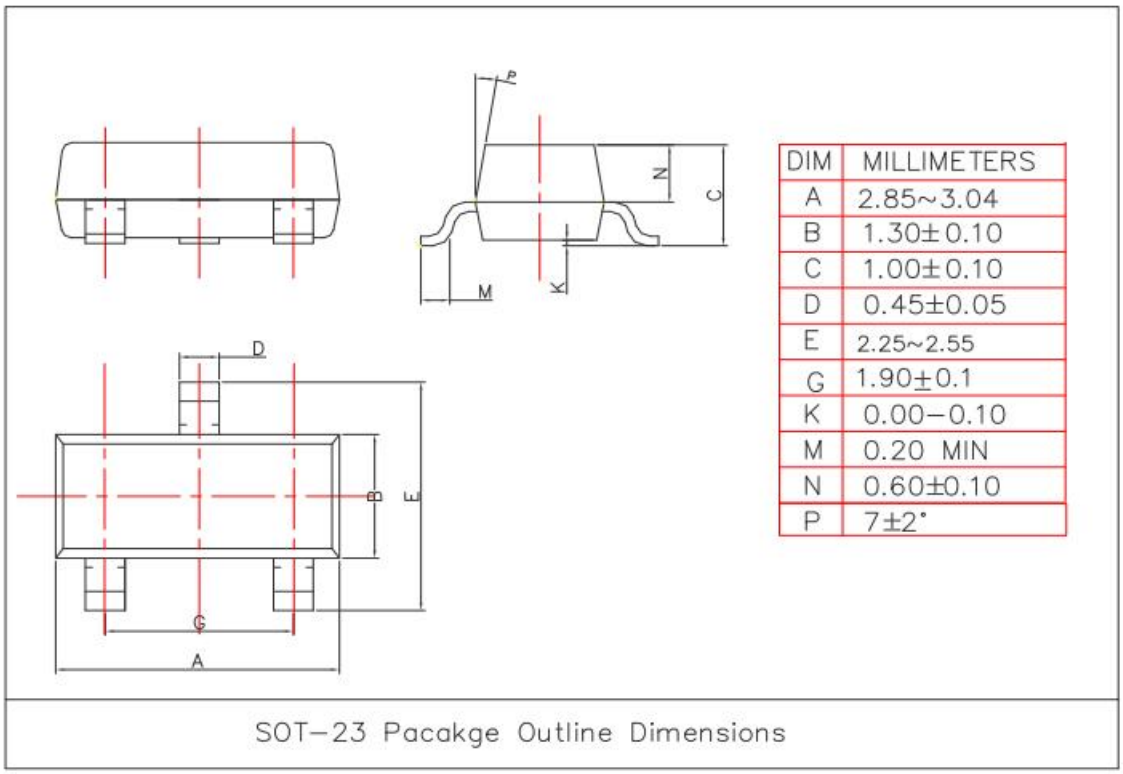
I_S — V_{SD}



Threshold Voltage



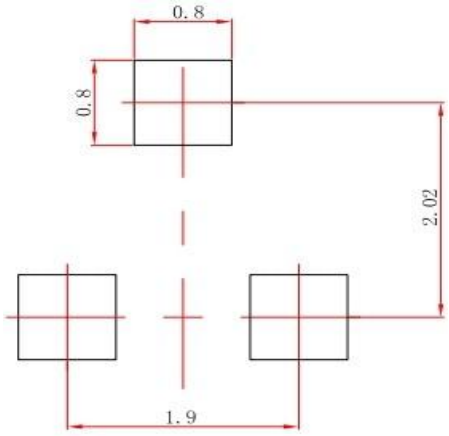
»Package Outline : SOT-23



DIM	MILLIMETERS
A	2.85~3.04
B	1.30±0.10
C	1.00±0.10
D	0.45±0.05
E	2.25~2.55
G	1.90±0.1
K	0.00−0.10
M	0.20 MIN
N	0.60±0.10
P	7±2°

SOT−23 Pacakge Outline Dimensions

»SOT-23 FOOTPRINT: (mm)



»Ordering information

Order code	Package	Base qty	Delivery mode
CT3400M2	SOT-23-3L	3k	Tape and reel